

CLAIMS

1. A seaming apparatus (10) for joining, along a seam without thread, at least two superposed flexible sheet materials (12, 14), said seaming apparatus comprising bonding means (16,18) for bonding together at least two flexible sheet materials, said bonding means having a nip portion (36) for releasably engaging together sheet material in use of the apparatus; and drive means (20,22) formed and arranged for engaging sheet material, in use and to be bonded, and moving incrementally sheet material through said bonding means, said drive means being formed and arranged to co-operate with said nip portion so as to sequentially nip then drive material through the apparatus wherein only one of said nip portion and said drive means is in contact with sheet material, in use of the apparatus, at any given moment.
2. An apparatus (10) according to claim 1 wherein the bonding means comprises an ultrasonic horn (18) and a welding foot (16), said horn (18) and said welding foot acting as said nip portion (36).
3. An apparatus (10) according to claim 1 wherein the bonding means comprises a laser (32).
4. An apparatus (10) according to any one of claims 1 to 3 further comprising a pin portion (29) formed and arranged to

-18-

hold in said apparatus, flexible sheet material (12,14), in use of the apparatus, at a time when it is not engaged by either the drive means (20,22) or the bonding means (16,18), enabling flexible sheet material in use of the apparatus to
5 be pivoted therearound for easy manoeuvring of a seam shape.

5. An apparatus (10) according to any one of claims 1 to 4 wherein the drive means comprises at least one feed dog (20) formed and arranged for co-operation with at least one moving
10 foot (22) between which flexible sheet materials (12,14) are engaged, in use of the apparatus, said at least one feed dog (20) being formed and arranged to incrementally move flexible sheet materials through the bonding means (16,18).

15 6. An apparatus (10) according to any one of claims 1 to 5 wherein said drive means (20,22) is adjustable so as to vary, in use of the apparatus, the feed rate of the flexible sheet material (12,14) through the seaming apparatus.

20 7. An apparatus (10) according to any one of claims 1 to 6 wherein the nip portion (36) has contact faces that are shaped so as to impart a patterned appearance to materials being joined (12,14) in use of the apparatus.

25 8. An apparatus (10) according to any one of claims 1 to 7 wherein the nip portion (36) further comprises a holding foot

-19-

(38) and a throat plate (40), said holding foot and said throat plate being formed and arranged for releasably engaging sheet material in use of the apparatus.

9. 5 9. A method for joining, along a seam without thread, at least two superposed flexible sheet materials (12,14) comprising the steps of;

a) providing a seaming apparatus (10) according to claim 1; and

10 b) introducing said at least two flexible sheet materials (12,14) into said seaming apparatus (10) whereby the flexible sheet materials are sequentially, nipped by the nip portion (36) of the apparatus whilst being bonded by the bonding means (16,18), then driven incrementally through
15 the apparatus by the drive means (20,22), with only one of said nip portion (36) and said drive means (20,22) being in contact with the sheet material at any given moment.